7703

Diag'd. on Diag. Ch. No. 1222-3

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

# DESCRIPTIVE REPORT

*Type of Survey* HYDROGRAPHIC

*Field No.* PBS-H-1148 *Office No.* H-7703

LOCALITY

*State* VIRGINIA

*General locality* CAPE HENRY

*Locality* VIRGINIA BEACH

194 8

CHIEF OF PARTY

A.C.Thorsen

LIBRARY & ARCHIVES

DATE April 18, 1949

B-1870-1 (1)



7703

Form 537
(Ed. June 1946)

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

# HYDROGRAPHIC TITLE SHEET

REG. NO. - H-7703

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

REGISTER No. H-7703

Field No. PBS-1148

State VIRGINIA

General locality VIRGINIA BEACH CAPE HENRY

Locality

Scale 1:10,000 Date of survey June 28 to Oct. 21, 1948

Instructions dated July 26, 1948

Vessel Parker, Bowen & Stirni

Chief of party A.C. Thorson

Surveyed by R.H. Tryon, Jr., J.E. Waugh, Wm. B. Randall

Soundings taken by ~~fathometer~~, graphic recorder, ~~Hand lead, wire~~

Fathograms scaled by Ship personnel

Fathograms checked by Ship personnel

Protracted by P.E. Jones

Soundings penciled by P.E. Jones

Soundings in ~~fathoms~~ feet at MLW ~~MLLW~~

REMARKS: All ship work was done a 1:20,000 boat sheet while launch work was done on a 1:10,000 scale.

U. S. GOVERNMENT PRINTING OFFICE 693019

DESCRIPTIVE REPORT

TO ACCOMPANY

HYDROGRAPHIC SURVEY H-7703, (Field No. PBS-H-1148)

VIRGINIA BEACH 1948

Scale 1:10,000 ~~1:20,000~~

Surveyed by:
Lt. Comdr. A. C. Thorson, Chief of Party
Lt. Comdr. R. H. Tryon, Jr. Ship STIRNI
Lt. Comdr. J. E. Waugh Ship BOWEN
Lt. (jg) W. E. Randall Ship BOWEN

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## A. PROJECT

The work was carried out under Supplemental Instructions - Project CS-326 dated 26 July 1948.

## B. LIMITS & DATES

The survey covers an unsurveyed inshore area southward from Cape Henry to Latitude 36° - 50'. Work was carried on intermittently from 28 June to 21 October 1948. Junction was made with the 1:40,000 scale offshore survey, Registry No. 6595 and with contemporary survey, Registry No. *Not registered* (Field No. PBS-H-4148).

Two boat sheets were used for field work. All ship work was done on a 1:20,000 scale, while the launch work was on 1:10,000 scale. It is recommended that all work be plotted on a 1:10,000 scale smooth sheet. *(Smooth sheet 1:10,000)*

## C. VESSELS AND EQUIPMENT

The Ships BOWEN & STIRNI, launch No. 82, and launch No. 103 were used in the survey operations. All worked from the Little Creek Mine Base, the launches being towed to the working grounds. Launch No. 103 is not adequate for hydrographic work, being too small to comfortably carry the party. It was used only a part of one day.

## D. TIDE STATION

No portable gages were established for this work. The readings from the standard gage at N.O.B., Hampton Roads, corrected for time and height differences as supplied by Washington Office were used to provide tide corrections.

F. CONTROL STATIONS

See [redacted] Sheet

H. SOUNDINGS

Soundings were obtained with type 808 Depth Recorders on the BOWEN & STIRNI. No. 1163 was used for work by the BOWEN and No. 65 was used by the STIRNI and launches. Additional sound projector units were available for installation in the launch.

Corrections to the soundings were obtained from bar checks taken in accordance with instructions in the Hydrographic Manual.

I. CONTOL OF HYDROGRAPHY

All lines were controlled by three-point fixes on objects located ashore.

J. ADEQUACY OF HYDROGRAPHY

The survey is adequate for charting of the area. The zero curve was not delineated because the launch used draws four feet of water and the days available for work in this area were not quiet enough to get in on the beach without endangering personnel and equipment. Junctions with adjoining surveys are satisfactory and the depth curves can be drawn at the junctions.

E. CROSSLINES

Approximately ten percent of lines run were crosslines. Discrepancies were from zero to eight percent of the depth. The larger discrepancies (two feet in twenty five) were in the deeper water and will probably be helped in smooth plotting and using actual reducers. (Discrepancies resulted during smooth plotting to an occasional difference of 1 ft.)

# BAR CHECK CORRECTIONS

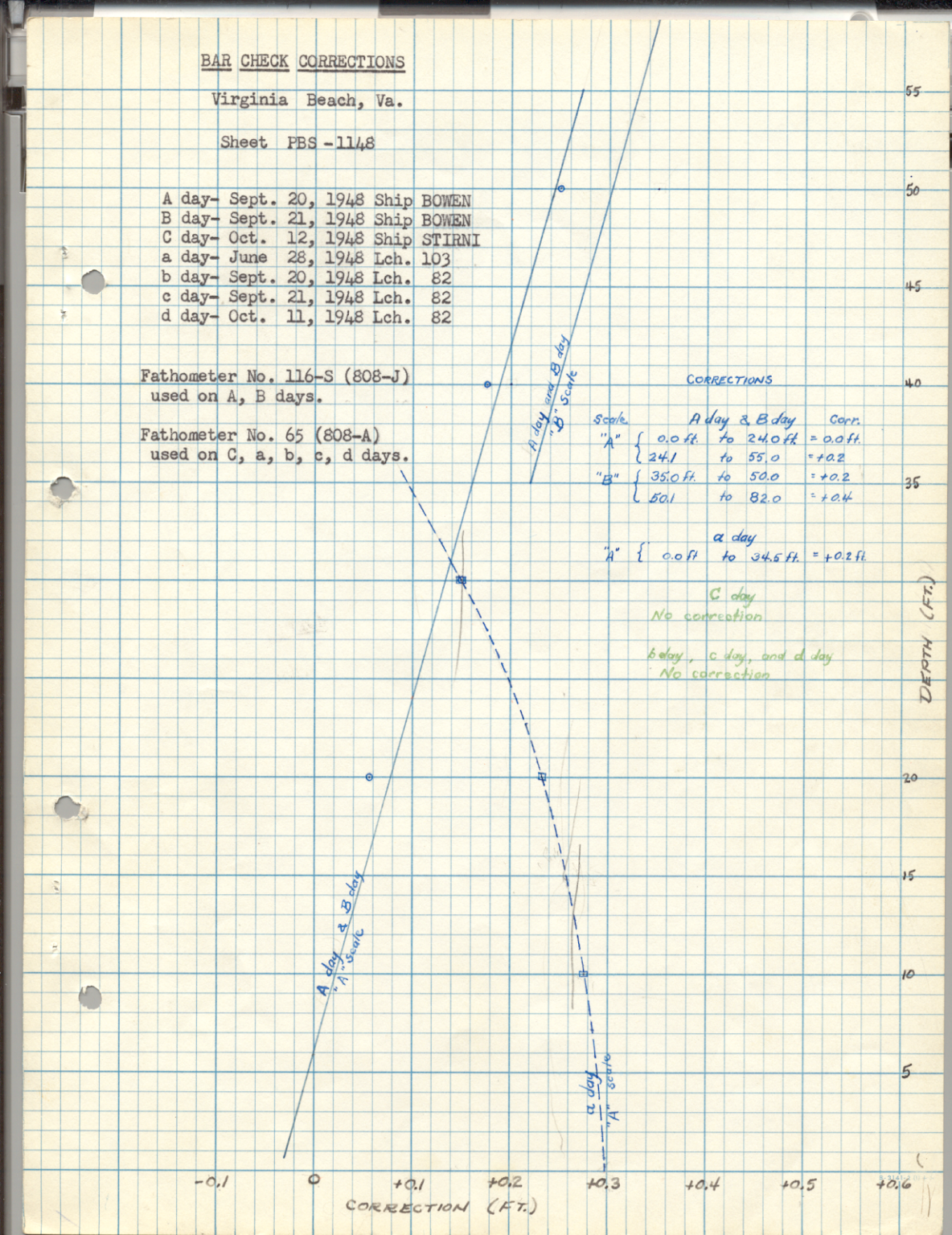
Virginia Beach, Va.

Sheet PBS-1148

A day- Sept. 20, 1948 Ship BOWEN
B day- Sept. 21, 1948 Ship BOWEN
C day- Oct. 12, 1948 Ship STIRNI
a day- June 28, 1948 Lch. 103
b day- Sept. 20, 1948 Lch. 82
c day- Sept. 21, 1948 Lch. 82
d day- Oct. 11, 1948 Lch. 82

Fathometer No. 116-S (808-J) used on A, B days.

Fathometer No. 65 (808-A) used on C, a, b, c, d days.




CORRECTIONS

| Scale | A day & B day | | | Corr. |
|---|---|---|---|---|
| "A" | 0.0 ft. | to | 24.0 ft. | = 0.0 ft. |
| | 24.1 | to | 55.0 | = +0.2 |
| "B" | 35.0 ft. | to | 50.0 | = +0.2 |
| | 50.1 | to | 82.0 | = +0.4 |

a day

"A" 0.0 ft to 34.5 ft. = +0.2 ft.

C day
No correction

b day, c day, and d day
No correction

# TIDE NOTE

The Standard Tide Gage at N.O.B., Hampton Roads was used to furnish data for this survey. Tide curves were drawn from hourly heights corrected for time and height differences furnished by the Washington Office.

Statistics for Hydrographic Survey H 7703 (Field No. 1148 2148)

PARKER, BOWEN, STIRNI, - PROJECT CS-326

| | Vol. No. | Day | Date | No. H.L. Soundings | No. Positions | Statute Miles |
|---|---|---|---|---|---|---|
| Launch | 1 | a | 28 June | 0 | 56 | 11.6 |
| | | b | 20 Sept. | 0 | 160 | 26.0 |
| | | c | 21 Sept. | 0 | 134 | 20.8 |
| | | d | 11 Oct. | 0 | 114 | 17.1 |
| | Totals for Launch | | | 0 | 464 | 75.5 |
| Ships BOWEN STIRNI | | A | 20 Sept. | 2 | 140 | 54.6 |
| | | B | 21 Sept. | 1 | 153 | 40.9 |
| | | C | 12 Oct. | 0 | 42 | 8.5 |
| | Totals for Ship | | | 3 | 335 | 104.0 |
| | Grand Total | | | 3 | 799 | 179.5 |

Total Square Statute Miles Sounding - 7.94

Respectfully submitted

Raymond H. Tryon Jr.

Raymond H. Tryon, Jr.
Lt. Comdr., USC&GS

Approved and Forwarded:

G. R. Fish

G. R. Fish
Lt. Comdr. (Chief of Party).

LIST OF SIGNALS (continued )

Topo. Stations

| ~~Hydro~~ Name | Latitude | meters | Longitude | meters |
|---|---|---|---|---|
| Joy | 36 - 51 | 1204 | 75 - 58 | 1042 |
| War | 36 - 51 | 1368 | 75 - 58 | 1083 |
| Ken | 36 - 51 | 1502 | 75 - 58 | 1277 |
| Leo | 36 - 52 | 22 | 75 - 58 | 1199 |
| Low | 36 - 52 | 286 | 75 - 58 | 1260 |
| Moo | 36 - 52 | 633 | 75 - 58 | 1330 |
| Ned | 36 - 52 | 810 | 75 - 58 | 1385 |
| Nub | 36 - 52 | 966 | 75 - 58 | 1418 |
| Lad | 36 - 52 | 1352 | 75 - 59 | 20 |
| Mag | 36 - 52 | 1823 | 75 - 59 | 127 |
| Off | 36 - 53 | 418 | 75 - 59 | 202 |
| Ora | 36 - 53 | 1493 | 75 - 59 | 527 |
| Tub | 36 - 53 | 1632 | 75 - 59 | 561 |
| Peg | 36 - 54 | 250 | 75 - 59 | 654 |
| Vex | 36 - 54 | 518 | 75 - 59 | 706 |
| Rit | 36 - 54 | 820 | 75 - 59 | 733 |
| Yam | 36 - 54 | 1372 | 75 - 59 | 904 |
| Ler | 36 - 54 | 1668 | 75 - 59 | 807 |

HYDROGRAPHIC STATIONS

| | | | | |
|---|---|---|---|---|
| Sin | 36 - 54 | 1646 | 75 - 59 | 873 |
| Vet | 36 - 54 | 362 | 75 - 59 | 1131 |
| Wag | 36 - 55 | 737 | 75 - 59 | 1390 |
| Yes | 36 - 55 | 850 | 76 - 00 | ~~33~~ 80 |
| Zoo | 36 - 55 | 980 | 76 - 00 | 301 |

[redacted]

The discussion of control stations [redacted]

Triangulation stations are from the Virginia List of Geographic Positions pp 44 and 73 (accession Nos. 1550 and 1895). Station PARCEL "C" TOWER "A" (USE) 1939, PARCEL "C" TOWER "B" (USE), 1939, HOLLIES TOWER "B" (USE), 1939, RIFLE RANGE TOWER "B" (USE), 1925 - 1939, CASEMATE, 1939, Cape Henry Weather Bureau Signal Mast 1939 are from the confidential list of positions from Supervisor, Southeastern District.

The remainder of the signals were located by plane table and sextant cuts, using the boat sheets for plane table sheets. From Latitude 36 - 52.5 to Latitude 36 - 54.9 the signals were located on the 1:10,000 scale boat sheet as follows:

1. Traverse northward from a three point fix using Cavalier Hotel, cupola, 1929; HOLLIES TOWER "B" (USE), 1939; and PARCEL "C" TOWER "A" (USE) 1939; to a resection on PARCEL "C" TOWER "A" (USE) 1939 - the check was exact.

2. Traverse from a resection at PARCEL "C" TOWER "A" (USE) 1939 to signal Sin, azimuth was out 5 meters. The discrepancy was adjusted.

From Latitude 36 - 54.9 northward and from Latitude 36 - 52.5 southward, signals were located on the 1:20,000 boat sheet as follows:

3. Signals Sin, Vet, Wag, Yes, Zoo were located by plane table cuts from the north strengthened by sextant cuts from offshore.

4. Traverse from same point as (1) to resection on VIRGINIA BEACH east radio mast 1932. The check was three meters in azimuth which was adjusted. Although both radio towers have been demolished, the center of the tower was reestablished from the impression made by the legs.

5. Traverse from tie at (3) southward to RIFLE RANGE TOWER "B" (USE) 1925 - 1939, the check was 10 meters in the azimuth which was adjusted.

Signal location was by Lt. Comdr. R. H. Tryon, Lt. Comdr. J. E. Waugh, and Lt. (j.g.) A. L. Powell.

LIST OF SIGNALS - See also [redacted] Sheet

| Triangulation Name | Hydro Name | Latitude | meters | Longitude | meters |
|---|---|---|---|---|---|
| Cape Henry Light-house, 1887-1932 | Hen | 36 - 55 | 1058.4 | 76 - 00 | 673.6 |
| Cavalier Hotel, cupola, 1929 | Cup | 36 - 52 | 258.4 | 75 - 59 | 49.8 |
| Virginia Beach water Tank 1909 - 1931 | Bunk | 36 - 50 | 1003.5 | 75 - 59 | 580.3 |
| **TOPOGRAPHIC STATIONS** | | | | | |
| | Far | 36 - 49 | 1474 | 75 - 58 | 509 |
| | Eva | 36 - 49 | 1817 | 75 - 58 | 438 |
| | Fez | 36 - 50 | 128 | 75 - 58 | 463 |
| | Fix | 36 - 50 | 482 | 75 - 58 | 463 |
| | Gad | 36 - 50 | 824 | 75 - 58 | 548 |
| | Gus | 36 - 50 | 1416 | 75 - 58 | 680 |
| | Daw | 36 - 50 | 1557 | 75 - 58 | 766 |
| | Hod | 36 - 51 | 38 | 75 - 58 | 773 |
| | Ice | 36 - 51 | 278 | 75 - 58 | 833 |
| | Jap | 36 - 51 | 643 | 75 - 58 | 924 |
| | Jim | 36 - 51 | 1063 | 75 - 58 | 1011 |

LIST OF [redacted] SIGNALS

| Triangulation Name | Hydro Name |
|---|---|
| Parcel "C" Tower "A" (USE), 1939 | Par |
| Parcel "C" Tower "B" (USE), 1939 | Tow |
| Hollies Tower "B" (USE), 1939 | Lies |
| Rifle Range "B" (USE), 1939 | Rif |
| Casemate, 1939 | Mate |
| Cape Henry Weather Bureau Signal Mast, 1939 | The |

These ~~positions~~ signals from confidential list at office of Supervisor, SE District

ADDENDUM

To Accompany

HYDROGRAPHIC SMOOTH SHEET H-7703 (Field No. P.B.S.-1148)

Control

All topographic stations taken from the 1:20,000 boat sheet were transferred on the projection machine. This method of transfer was used to minimize slight errors in converting from a smaller to a larger scale.

Signals Zoo, Yes, Wag, Vet and Sin were adjusted according to sextant cuts from off-shore and designated on the smooth sheet as hydrographic signals. Apparent jumps in time were noted when these signals were used. No discrepancies result

Respectfully submitted,

Hugh L. Proffitt

Hugh L. Proffitt
Cartographer

Norfolk, Virginia
12 April 1949

Approved and forwarded.

Earl O. Heaton

Earl O. Heaton
Supervisor, S.E. Dist.

GEOGRAPHIC NAMES

Survey No. H-7703

| Name on Survey | On Chart No. A | On previous survey No. B | On U. S. quadrangle Maps C | From local information D | On local Maps E | P. O. Guide or Map F | Rand McNally Atlas G | U. S. Light List H | K | |
|---|---|---|---|---|---|---|---|---|---|---|
| Virginia | | | | | | | | | USGB | 1 |
| Atlantic Ocean | | | | | | | | | | 2 |
| Cape Henry | | | | | | | | | | 3 |
| Virginia Beach | | | | | | | | | | 4 |
| | | | | | | | | | | 5 |
| | | | | | | | | | | 6 |
| | | | | | Names underlined in red are approved. 4/29/49 L. Heck | | | | | 7 |
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M 234

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H7703

Records accompanying survey:

Boat sheets ..2..; sounding vols. ..4..; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls 4 envel.;

special reports, etc. 27 Station Cards (Form #524).....

.....

The following statistics will be submitted with the cartographer's report on the sheet:

| | | |
|---|---|---|
| Number of positions on sheet | | 799 |
| Number of positions checked | | 250 |
| Number of positions revised | | 4 |
| Number of soundings revised (refers to depth only) | | 9 |
| Number of soundings erroneously spaced | | — |
| Number of signals erroneously plotted or transferred | | 1 |
| Topographic details | Time | 4 |
| Junctions | Time | 8 |
| Verification of soundings from graphic record | Time | 30 |

Verification by Roland E. Latta ..Total time 104. Date 17 Aug 1949

Reviewed by.... J. A. Dinsmore..... Time ..26.. Date Nov. 25, 1949

M-2232-1

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7703

FIELD NO. PBS-H-1148

Virginia, Cape Henry, Virginia Beach
Surveyed in June - October, 1948 Scale 1:10,000
Project No. CS-326

Soundings:

808 Fathometer

Control:

Sextant fixes on shore signals

Chief of Party - A. C. Thorson
Surveyed by - R. H. Tryon, Jr; J. E. Waugh; W. E. Randall
Protracted by - P. E. Jones
Soundings plotted by - P. E. Jones
Verified and inked by - R. E. Latta
Reviewed by - T. A. Dinsmore, November 25, 1949
Inspected by - R. H. Carstens

1. Shoreline and Signals

The shoreline originates with topographic quadrangles T-8299 and T-8301 (1942-44).

The origin of the signals is given in the Descriptive Report.

2. Sounding Line Crossings

Depths at crossings are in good agreement.

3. Depth Curves and Bottom Configuration

Except for the low-water line, the usual depth curves are adequately delineated. Determination of the low-water line was impracticable as explained in paragraph J. of the Descriptive Report.

The bottom is smooth and drops fairly rapidly from the high-water line to 18-ft. depths except southeast of Cape Henry where the 18-ft. curve extends about two thirds of a mile offshore. Northeast of Cape Henry depths as great as 49 ft. were obtained.

4. Junctions with Contemporary Surveys

A butt junction was effected with H-6595 (1940) on the north and east. Overlapping soundings from H-6595 on the north were 1-4 ft. deeper than present depths and 1-2 ft. deeper at several spots on the east where minor changes in the bottom have occurred. In the overlapping area, the present survey supersedes H-6595.

Project surveys on the northwest are not registered at the present time. Charted soundings on the south are in adequate agreement with present depths.

5. Comparison with Prior Surveys

a. H-397 (1853) and H-520 (1855) 1:40,000

Only a few soundings from these early reconnaissance surveys fall within the limits of the present survey. No important differences in depths are noted. Within the common area, these old surveys have been superseded by later and more complete surveys.

b. H-3923 (1916-17) 1:30,000 and H-4286 (1922) 1:40,000

H-3923 covers that portion of the present survey north of lat. 36° 54.5'. Considerable shoaling has taken place in this area. Prior depths of 17 ft. in lat. 36° 55.30', long. 75° 59.40', and 24 ft. in lat. 36° 55.27', long. 75° 59.05, are now superseded by present depths of 11 ft. and 13-14 ft., respectively. In this vicinity the 18-ft. curve has moved seaward as much as 700 meters. Further evidence that inshore shoaling has occurred is indicated by an accretion in the shoreline here of as much as 60 meters.

H-4286 overlaps a small portion of the present survey on the south. Indications of natural shoaling appear in this area where present depths of 6 to 27 ft. are from 1 to 4 ft. less than the prior depths.

The present survey is adequate to supersede the prior surveys within the common area.

6. Comparison with Chart 1222 (Latest print date 6/20/49)

A. Hydrography

No hydrography is charted in the previously unsurveyed area which lies inshore from the 18-ft. depth curve and between lat. 36° 50.0', and lat. 36° 54.5'.

Charted hydrography in the remaining portion of the present surveyed area originates with prior survey H-3923 (1916-17) and junctional survey H-6595 (1940) except the 12-ft. sounding, charted in lat. 36° 55.25', long. 75° 59.18', which is from advance information of the present survey as reported in H.O. Notice to Mariners No. 20 (1949). The subject of this Notice to Mariners is the shoaling discussed under paragraph 5b above. Depths in the vicinity of the charted 12-ft. sounding have been revised slightly during verification of the present survey. The present survey supersedes the charted hydrography.

B. Aids to Navigation

No aids to navigation are charted within the area of the present survey. No dangers to navigation are revealed by the present survey. Attention, however, is again directed to the major shoaling that has taken place east of Cape Henry (H.O. N. to M. No. 20, 1949).

7. Condition of Survey

a. The sounding records and the Descriptive Report are complete.

b. The smooth plotting was accurately done.

c. As previously stated, development to the low-water line was not accomplished.

d. Only two bottom characteristics were obtained in this area of changeable bottom, a portion of which had not been previously surveyed.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions except as noted under paragraph 7c and d above.

9. Additional Field Work

This is a very good survey and is considered basic for the area covered. However, as a matter of record, it is noted that inshore areas were not surveyed to the low-water line and few bottom characteristics were obtained.

Examined and approved:

H. R. Edmonston
Chief, Nautical Chart Branch

Casper M. Durgin
Chief, Division of Charts

K. G. Crosby
Chief, Section of Hydrography

W. M. Scaife
Chief, Division of Coastal Surveys

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. June 1937

# TIDE NOTE FOR HYDROGRAPHIC SHEET

May 3, 1949

~~Division of Hydrography and Topography~~

Division of Charts: R. H. Carstens

Plane of reference approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET 7703

Locality Off Virginia Beach, Virginia

Chief of Party: A. C. Thorson in 1948
Plane of reference is mean low water, reading
3.6 ft. on tide staff at Hampton Roads (N.C.B.)
13.4 ft. below B. M. 6 (1927)

Height of mean high water above plane of reference is 2.5 feet.

NOTE: These tide reducers were checked by means of Hampton Roads observations using the following allowances at the working ground.

| Time of Tide | Height of High Water |
|---|---|
| - 1 hr. 05 min. | + 0.5 ft. |

Condition of records satisfactory except as noted below:

E.C. McKay
Section
Chief, ~~Division~~ of Tides ~~and Currents~~

U. S. GOVERNMENT PRINTING OFFICE 154327

# NAUTICAL CHARTS BRANCH

SURVEY NO. H-7703

## Record of Application to Charts

| DATE | CHART | CARTOGRAPHER | REMARKS |
|---|---|---|---|
| 4/25/49 | 1109 | H.W Burgoyne | No correction<br>(Before) ~~After~~ Verification and Review |
| 4-19-50 | 1227 | [illegible] | ~~Before~~ After Verification and Review Fully applied |
| 4-26-50 | 78 | McGlasson | Before After Verification and Review No critical Corrections |
| 9/20/50 | 481 | H.J. Alexman | ~~Before~~ After Verification and Review Completely applied |
| 9/21/50 | 11,940-25-2 & 11,940253 | J.F. Richardson | ~~Before~~ After Verification and Review Completely |
| 12 Jan 51 | Reconstr. 1222 | H.E. MacEwen | ~~Before~~ After Verification and Review |
| 12/10/51 | 1109 | H.W Burgoyne | ~~Before~~ After Verification and Review No Corr Completely Applied |
| 7/3/52 | 3335 | C.R. Wittmann | ~~Before~~ After Verification and Review (Completely) |
| NOV. 53 | 1000 | H.J. Alexman | Before After Verification and Review (Completely) thru 1109 |
| 8/16/56 | Reconstr. 481 | [illegible] | ~~Before~~ After Verification and Review |
| 4-1462 | 562 | R.E. Elkins | applied after Ver & Rev thru chrt 3335 & H-7703. |
| 8/24/70 | 78 | L. McMillan | fully after Ver & Review thru 1222 Dwg 57 |
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M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.